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ABSTRACT

An ongoing distance learning project at the University of Northern Colorado (UNC) in Greeley is described. When the project, the Western Institute for Distance Education (WIDE), is complete, the system will provide access to education courses so that 98% of the state's population will be within 60 miles of a site. At present there are three operational sites: Greeley, Grand Junction, and Denver. In distance education, the learner is physically separated from the teacher, and communication is through some form of media. The purpose of WIDE is to support the UNC's statewide mission of delivering graduate teacher education programs to Colorado's citizens. In this program, the delivery system is compressed video, which employs T-2 telephone technology to transport live interactive two-way video, voice, and data between sites. WIDE uses every opportunity to gather affective data about attitude changes in students in the distance learning class. An example is provided in the discussion of a library catalog class. Both before and after taking the course, students in this distance education class were administered a survey concerning their affective concerns and feelings about being in such a class. All of these students experienced a positive attitude shift about the means of class delivery from the beginning to the end of the distance-delivered segment. Recommendations are made of ways to move the learner smoothly through the areas of concern predicted by the model of G. E. Hall: (1) awareness; (2) informational concern; (3) personal; (4) management; (5) consequence; (6) collaboration; and (7) refocusing. These factors must be addressed by those designing instruction so that it will meet the goals and objectives of the course being taught. (SLD)

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Measuring Affective Change: Students in a Distance Education Class

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Abstract

This describes an ongoing distance education project at the University of Northern Colorado (UNC), Greeley, Colorado. The university has established the Western Institute for Distance Education (W.I.D.E) to be the administering agency for its "statewide campus" program. This is a report of the descriptive study now being undertaken at the W.I.D.E. Students in a distance education class were assessed both pre and post as to their affective concerns and feelings about being in such a class. It includes the research background for the ongoing study and provides recommendations for designing a distance learning system obtained from observing students in a distance learning class.

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Measuring Affective Change:
Students in A Distance Education Class

Presented to the
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The purpose is to describe a distance learning project now underway at the University of Northern Colorado. The presentation will include an introduction to the Western Institute for Distance Education (WIDE), an outline of the distance learning delivery system now in place, a description of a project to gather data from students using this system to take a class, and will conclude with recommendations for obtaining positive attitude changes in adult learners in a distance learning situation.

The Western Institute for Distance Education (W.I.D.E.) was established here at the University of Northern Colorado (UNC) in January 1990. Its purpose is to support UNC's statewide mission of delivering graduate teacher education programs to Colorado's citizens. It is the administering arm of the university's distance education program. When it is completed in 1994, the system will provide access to education courses so that 98% of the state's population will be within 60 miles of a site. At present there are three operational sites: Greeley, Grand Junction, and Denver.

W.I.D.E. provides technical and instructional support both on and off campus for the development, production and evaluation of

distance education activities. It is responsible for the design of faculty development and training so that instruction can be adapted to be taught in distance education formats. It generates research projects to provide data for the institution to use to evaluate and revise the project. It undertakes needs assessments and evaluations to further provide information so enhance the success of the project.

Distance education is a special situation in which the students and the teacher are physically separated from one another. Often this distance is many miles across the state. The learner is physically separated from the sponsoring institution which administers the contract between the student and the teacher. There is some mediated intervention such as satellite, fiber optics, or microwave which make bridging the distance possible. Other media uses such as audiotape, videotape, print, facsimile machines, and print help provide access to the instructional content.

The delivery system being used at UNC is compressed video. It employs T-1 telephone technology to transport live, interactive, two-way compressed video, voice, and data on a dedicated network. Since it is live both the sending and receiving sites can see and hear each other at the same time. Using compressed video to deliver instruction, advise students and carry on conferences and meetings is extremely cost-effective. Its best feature is the ability to deliver "eyeball to eyeball" contact between students and instructor from one site to the another. Even though the image is not as clear as that of full motion video, it is still quite acceptable for many applications. The trade off in the loss of clarity is tolerable when considering the

inconveniences of driving many hours or even having to stay over night to take a class.

At both the sending and receiving sites there is a video monitor, a video camera, a computer with videoconferencing hardware installed, and a microphone/speaker system. This equipment is typically set up with a table and chairs or desks at each end so that the instructor sits at the table and looks into the camera. The students have a similar set up at the other end. This description of the arrangement will make it possible to visualize the typical instructional situation.

One of W.I.D.E's goals is to develop research situations to generate data to aid in the ongoing process of development. It has become increasingly apparent that in order to maximize the benefits and strengths of this system it will be necessary to include not only the cognitive and psychomotor skills necessary for this project to be successful but to also include the affective portion of human learning. In order to accomplish this the W.I.D.E has begun to study this aspect on a case study basis. The W.I.D.E uses every opportunity to gather affective data concerning attitude changes in students in the distance learning class.

One such opportunity was a weekend long graduate library catalog class. This was a class which is ordinarily taught on three complete weekends spread throughout the semester. The instructor usually goes to Grand Junction all three weekends. An experiment was set up to have the second weekend segment be taught by compressed video between Greeley and Grand Junction. The students were surveyed at the beginning and at the end of the

compressed video segment. They were asked about their apprehensions about being in the class, their concerns that it would not be as "good" as a traditionally taught class, their concern that the technology would interfere with the learning process, and their willingness to accept the somewhat less than perfect picture in order to have access to a class they needed to complete a degree.

The results of the survey showed that all of the students experienced a positive attitude shift from the beginning to the end of the distance delivered segment. There was a positive shift in reference to their perception that the class was as good as a traditionally taught one. A majority of the students felt that they got what they needed form the course as it was delivered. None of them felt that they had been shortchanged. However, they were all strongly in agreement that it is critical to see the teacher first before having a distance delivered segment in order to establish a rapport with the instructor. That would allay fears about the unusual delivery format.

There are many research findings and principles that contribute to the knowledge base concerning attitude change and these include: the need to provide learners a motivation to change an attitude, giving them a WHIFM (what's in it for me?), (Gagne, Keller, Maslow), giving them the confidence that they can change the attitude, (Tosti, Keller, Wlodkowski), giving them a presentation (speaker/media) that is credible and yet is familiar and speaks to them in their own language, (Fleming and Levie, Kretch) giving them a model of the attitude you want them to have, (Bandura, Fleming and Levie), using a two sided argument to acknowledge and diffuse

their present attitude, (Hovland, Lumsdaine & Sheffield), creating a cognitive dissonance toward holding the current attitude and some other strongly held attitude or value, (Heider, Festinger) have learners practice and demonstrate the attitude and reinforce their behavior, (Gagne, Keller, Fleming & Levie, Wlodkowski) [Silber, K., 1989]. Research data gathered at the W.I.D.E seeks to enlarge upon these research bases to bring about the desired attitude changes in adult learners.

Remember that change is a process and often involves considerable time and effort. When implementing a telecommunicated distance learning program, we are asking folks to accept a new way of teaching and receiving instruction. It doesn't matter that the concept itself is new, only that it is perceived as new to the individual (Rogers and Shoemaker, 1971). We have found that human beings resist change. It is much less stressful to stay the same. Change is a process that may take several years and not something that happens necessarily after a single training session or even several sessions. Be aware that accepting an innovation involves more than the motor skill of just knowing which buttons to push and the cognitive skill of understanding its applications and uses. Remember that the affective domain will figure prominently in the integration of an innovation into the user's knowledge base. There are human factors which must be addressed (Chute, 1990). For example, some factors which must be in place before an innovation will be accepted are: a feeling that the innovation will be personally helpful to the individual, the knowledge that the innovation is a priority to the organization, and a personal comfort

with the hardware. No one will be anxious to adopt an innovation that seems trivial, has no perceived value, or will not fulfill a need.

When anyone is undergoing change, they experience stress. Much has been written about change and its incorporation into our lives. The seminal work of Rogers has laid the foundation for work by Gene Hall who at the U. of Texas, Austin developed the CONCERNS BASED ADOPTION MODEL. According to this model there are seven predictable areas of concern that a learner will pass through in the process of fully accepting the innovation. These are: awareness, informational, personal, management, consequence, collaboration and refocusing (Hall, Wallace & Dossette,1973). At each of the levels the learner will express specific concerns, questions, and comments which can be identified and analyzed. Our goal is to move the learner up as high as possible through the levels. The instructional designer may then use these concerns once they are identified as a bench mark to prescribe interventions for moving the learner to the next level (Chute, Hancock, & Lapierre, 1982).

At the awareness level the user can be introduced to the innovation by presenting it so that it stimulates curiosity and arouses interest. At the informational level the individual is not worried about his or her relationship to the innovation, but is simply looking for more information, and general characteristics. A typical concern at this level might be,"How much do I know to know?" At the personal level the individual may feel inadequate to handle the demands of the innovation, may be unsure of his or her personal relationship with the innovation. A concern at this level might be a feeling of helplessness or a fear of looking foolish if something goes

wrong. At the management level the individual begins to be concerned about the processes of managing, organizing, and efficiency. A typical concern night be that the individual is not adequately trained to be an efficient user. At the consequence level concerns focus on the evaluation of student outcomes, and performance and competencies. Individuals may voice concerns about comparisons of the innovation with traditional forms of teaching. At the collaboration level users are beginning to integrate the innovation into their awareness so that they can share its usefulness with colleagues. At the last level of the concerns based adoption model, the level of refocusing, the individual has analyzed and synthesized its use so that the innovation might be modified to make it more effective.

Using both the data gathered in the case study described above and the research bases named above these are some recommendations for effecting attitude change in adults in distance learning situations: make sure that the instructor is adequately trained in televised teaching techniques, carefully set up the instructional situation so that the environment is comfortable, provide assurance that technical support is available, give students and instructor an opportunity to get acquainted, test your prototype often, take frequent "gut" checks, ask for input and suggestions, maximize interactivity between students and instructor and students and other students.

More than just the cognitive and psychomotor skills will be necessary for both instructor and students to feel good and perform at their best in a distance learning situation. It is critical to pay

attention to these factors and to carefully design instruction so that the goals and objective of the course that is being taught can be met.

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